[CLAIMS]

1.   An apparatus of converting three color image signals into four color image signals having a white signal, the apparatus comprising:

a storing unit storing a plurality of white scaling factors; and

a signal converting unit selecting a corresponding white scaling factor of the white scaling factors stored in the storing unit based on a white scaling signal from an external, converting the three color image signals into the four color image signals based on the selected white scaling factor and outputting the converted four color image signals.

2. The apparatus of claim 1, further comprising:

a digamma processing unit digamma processing the three color image signals and applying to the signal converting unit; and

a gamma processing unit gamma processing the four color image signals from the signal converting unit.

3. The apparatus of claim 2, wherein the storing unit is a lookup table.

4. The apparatus of claim 3, wherein the signal converting unit extracts a maximum value and a minimum value of the three color image signals, determines that the three image color signals are included in a fixed scaling area or a variable scaling area based on the maximum value and the minimum value, calculates a increasing ratio based on a fixed scaling factor when the three color image signals are included in the fixed scaling area, calculates the increasing ratio based on the maximum value, the minimum value, and the selected white scaling factor when the three color image signals are included in the variable scaling area, and converts the three color image signals into the four color image signals depending on the calculated increasing ratio and the three color image signals.

5. The apparatus of claim 4, wherein the fixed scaling factor is to add "1" to the selected white scaling factor.

6. The apparatus of claim 5, wherein the white scaling factors have values between 0.8 and 0.9, and each of scaling factors has a value divided equally by eight between 0.8 and 0.9.

7. The apparatus of claim 6, wherein the white scaling factors are eight whites scaling factors.

8. A method of converting three color image signals into four color image signals having a white signal, the method comprising:

5   extracting a maximum value and a minimum value of the three color image signals;

reading a white scaling signal from an external;

selecting a corresponding white scaling factor of the white scaling factors based on the read white scaling signal;

10   determining that the three image color signals are included in a fixed scaling area or a variable scaling area based on the maximum value and the minimum value;

calculating a increasing ratio depending on a fixed scaling factor based on the selected white scaling factor when the three color image signals are

15   included in the fixed scaling area;

calculating the increasing ratio based on the maximum value, the minimum value, and the selected white scaling factor when the three color image signals are included in the variable scaling area; and

converting the three color image signals into the four color image signals

20   depending on the calculated increasing ratio and the three color image signals.

9. The method of claim 8, further comprising:

digamma processing the three color image signals; and

gamma processing the converted four color image signals.

10. The method of claim 9, wherein the conversion to four color image

25   signals comprises:

calculating first conversion image signals by multiplying the increasing ratio to the three color image signals;

calculating a minimum value of the first conversion image signals;

calculating a compensation value by dividing a value multiplied the

30   selected white scaling factor to the minimum value into the scaling factor; and

calculating resultant three color image signals by subtracting the compensation from the first conversion image signals, and calculating the white signal by dividing the compensation into the selected white scaling factor.

11. A display device comprising:

a plurality of pixels arranged in a matrix;

a gray voltage generating unit generating a plurality of gray voltages;

an image converting unit converting three color image signals into four color image signals; and

a data driving unit selecting gray voltages corresponding to the converted four color signals among the gray voltages from the gray voltage generating unit,

wherein the image converting unit further comprises a storing unit storing the white scaling factors,

wherein the image converting unit selects a corresponding white scaling factor of the white scaling factors based on a white scaling signal from an external and converts the three color image signals into the four color image signals based on the selected white scaling factor.

12. The device of claim 11, wherein the signal converting unit extracts a maximum value and a minimum value of the three color image signals, determines that the three image color signals are included in a fixed scaling area or a variable scaling area based on the maximum value and the minimum value, calculates a increasing ratio based on a fixed scaling factor when the three color image signals are included in the fixed scaling area, calculates the increasing ratio based on the maximum value, the minimum value, and the selected white scaling factor when the three color image signals are included in the variable scaling area, and converts the three color image signals into the four color image signals depending on the calculated increasing ratio and the three color image signals.

13. The device of claim 12, wherein the fixed scaling factor is to add "1" to the selected white scaling factor.